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Short knee radiographs in the evaluation of coronal alignment after total knee arthroplasty

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Background: Standardized postoperative short knee radiographs radiographs serve as documentation and surgeon performance feedback following following total knee arthroplasty. Controversy Controversy regarding the relationship between between alignment measurements on postoperative and full-length radiographs radiographs are evident both scientifically scientifically and during daily conference conference with participation of non-knee knee surgeons. Measurement of mechanical mechanical coronal knee alignment from standing full-length lower-limb radiographs radiographs is gold standard, alignment alignment in the range from 177-183 is considered considered neutral.
Purpose / Aim of Study: To examine relationship between coronal coronal plane implant alignment measured measured from postoperative and follow follow-up full-length radiographs.
Materials and Methods: Retrospective study on a consecutive cohort cohort. Measurements of alignment using using TraumaCad™ guides. Examination Examination of intra- and inter-rater reliability reliability of the measurements, and agreement between short knee radiographs radiographs and full-length radiographs radiographs, with intraclass correlation coefficient coefficient. Evaluation of clinical relevance relevance from Bland Altman analysis and sensitivity analysis.
Findings / Results: 138 cases were included. Intra- and inter-rater reliability of the measurements measurements was excellent, with ICC above above .95. Agreement between the methods methods was good (ICC=.81(.74-.87)). Mean mechanical tibiofemoral alignment alignment from full-length radiographs ((mTFA) = 179 ±2.9 degrees. Mean anatomical anatomical tibiofemoral alignment from the knee radiographs (aTFA) = 185 ± ±2.6 degrees. Mean difference between between methods = 5.8 (CI 5.4-6.1) and 95% limits of agreement 1.4 to 10 degrees degrees. Censoring of suboptimal projections projections and very short short films only only improved the results slightly. 32 full-length radiographs and 35 postoperative showed malalignment. Positive predictive value of a postoperative knee radiograph with malalignment malalignment was 54% and negative predictive predictive value was 87%.
Conclusions: Good agreement between the methods might might justify the cautiously use of short film anatomical angulations as surrogate surrogate measurement of alignment. Clinicians Clinicians should be aware of the wide limits of agreement and predictive power when evaluating postoperative TKA radiographs.